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AGRICULTURAL EXPERIMENT STATION  
UNIVERSITY OF ALASKA

INFORMATION  
FOR PROSPECTIVE SETTLERS  
IN ALASKA

Circular No. 1

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COLLEGE, ALASKA  
Reissued and Revised December 1, 1941  
Lorin T. Oldroyd, Director



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AGRICULTURAL EXPERIMENT STATION  
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# INFORMATION FOR PROSPECTIVE SETTLERS IN ALASKA

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This is the sixth revision of this Circular. It was originally issued May 11, 1916, by Dr. C. C. Georgeson, Agronomist in charge, Alaska Agricultural Experiment Stations and revised by him in 1917 and 1923. The next revision was that of 1930 by Dr. H. W. Alberts, Director of Alaska Agricultural Experiment Stations at that time. In 1937 there was a revision by Professor George W. Gasser, who was then Director of the Alaska Agricultural Experiment Stations.

Circular No. 1 is designed to give prospective settlers in Alaska, particularly homesteaders, information on subjects which will be of vital interest to them. It is also intended to call their attention to many factors about which they should be informed before settling in a new and comparatively little known Territory.

Most of Alaska lies between the same parallels of latitude as Norway, Sweden, Finland, and one-third of Russia. Alaska embraces about 586,000 square miles of Territory. It has been demonstrated both at the Experiment Stations and by hundreds of settlers scattered over the country that the Territory has extensive agricultural possibilities. Detailed information can be obtained in the Annual and Progress Reports of the Alaska Agricultural Experiment Stations, College, Alaska. In recent years considerable publicity has been given to the agricultural possibilities of the Matanuska and Tanana Valleys. These regions have fertile soil and are well suited to the production of certain kinds of farm produce. The Government railway traverses both valleys and has made them accessible to settlers.

In this Circular an attempt will be made to answer as far as possible, the questions which prospective settlers in the Territory would naturally ask and which are addressed to the Experiment Stations, various other organizations, and individual residents in every mail. Since it would be impossible to give comprehensive answers to all these questions within the limits of this Circular, discussions on the subjects covered must be brief.

## CLIMATE

From the homesteaders' standpoint, information as to climatic conditions is of paramount importance. Speaking generally and briefly, Alaska has three climatic belts, known respectively as the coast region, the interior, and the Arctic. Tables 1, 2, and 3 show weather data for the coastal and interior regions, where farming is possible.



The University of Alaska and the Fairbanks Experiment Station from the air. The University buildings and campus are in the foreground, the land and buildings of the Experiment Station in the background. The photograph also shows the rolling to hilly topography and in places the original spruce-birch forest cover.

TABLE 1

Average Annual Precipitation and Mean and Extremes of Temperature at  
Various Places in the Coast Region of Alaska  
(By United States Weather Bureau)

Locality	Length of Record Years	Average Annual Precipitation Inches	Average Annual Snowfall Inches	Temperature		
				Mean Annual °F	Maximum F	Minimum <sup>2</sup> °F
Ketchikan	30	151.33	34.7	45.2	96	- 8
Juneau	47	83.89	110.5	42.2	89	-15
Skagway	33	26.47	40.1	40.1	92	-22
Angoon	32	50.89	76.8	40.6	84	-10
Sitka	79	87.58	42.4	43.9	87	- 5
Cordova	29	146.64	136.5	40.8	87	-19
Valdez	29	60.47	302.1	35.8	84	-24
Seward	28	67.40	78.1	38.9	88	-20
Homer	10	32.94	98.7	38.2	79	-17
Kenai	9	18.64	51.6	33.3	89	-46
Anchorage	24	14.61	60.2	34.9	92	-36
Kodiak	48	62.13	47.7	41.0	85	-12
Coal Harbor	20	48.48	57.2	39.1	80	-19
Dutch Harbor	23	58.04	71.1	40.4	80	8
Dillingham	24	26.08	63.8	34.3	89	-41
Bethel	17	17.67	39.9	29.7	87	-46
St. Paul Island	38	27.43	57.7	34.8	63	-26
Nome	34	17.50	60.3	25.8	84	-47

<sup>1</sup>Precipitation includes rain and melted snow.

<sup>2</sup>Minus sign indicates below zero.

TABLE 2

Average Annual Precipitation<sup>1</sup> and Mean and Extremes of Temperature at Various Places in the Interior of Alaska

(By United States Weather Bureau)

Locality	Length of Record Years	Average Annual Precipi- tation Inches	Average Annual Snowfall Inches	Temperature		
				Mean Annual °F	Maxi- mum °F	Mini- mum <sup>2</sup> °F
Allakaket	27	12.93	84.3	18.8	92	-70
Chitina	9	11.90	67.5	29.3	88	-58
Copper Center	13	9.15	39.3	26.1	96	-74
Eagle	35	10.74	52.7	24.2	95	-75
Fairbanks <sup>3</sup>	36	11.67	49.4	26.6	99	-65
Fort Yukon	25	6.83	42.6	20.0	100	-71
Holy Cross	37	19.76	87.6	28.0	93	-58
Matanuska	21	15.62	45.6	35.6	84	-36
Nenana	18	10.99	49.7	26.6	98	-66
Nulato	15	16.45	83.3	24.6	90	-62
Rampart	28	9.94	49.2 <sup>4</sup>	22.4	97	-63
Sunrise	11	35.29		33.8	79	-29
Talkeetna	21	29.76	140.8	33.5	90	-48
Tanana	40	13.31	54.0	23.5	91	-76

<sup>1</sup>Precipitation includes rain and melted snow.

<sup>2</sup>Minus sign indicates zero.

<sup>3</sup>Record taken at Experiment Station, four miles westnorthwest of Fairbanks and fifty feet higher elevation.

<sup>4</sup>No snowfall data available for Sunrise.

TABLE 3

Mean Temperature for January and July at Various Places in the Interior and in the Coast Regions of Alaska

Locality	Length of Record Years	January Mean Temperature, °F	July Mean Temperature °F
INTERIOR:			
Allakaket	27	-20.1	57.8
Chitina	9	- 3.0	57.9
Copper Center	13	-11.5	56.3
Eagle	35	-13.4	59.1
Fairbanks <sup>2</sup>	36	- 9.8	59.9
Fort Yukon	25	-20.8	61.4
Holy Cross	37	- 3	56.7
Matanuska	21	12.9	58.2
Nenana	18	- 9.1	61.0
Nulato	15	- 7.6	57.5
Rampart	28	-16.3	59.4
Sunrise	11	10.7	53.4
Talkeetna	21	8.1	57.9
Tanana	40	-12.2	58.5
COAST REGION:			
Ketchikan	30	33.1	57.6
Juneau	47	27.8	56.7
Skagway	33	21.3	57.7
Angoon	32	23.4	55.1
Sitka	79	32.6	55.0
Cordova	29	27.5	55.0
Valdez	29	19.2	53.3

Locality	Length of Record Years	January Mean Temperature, ° F	July Mean Temperature ° F
Seward .....	28	22.6	55.2
Homer .....	10	23.1	54.8
Kenai .....	9	10.3	53.6
Anchorage .....	24	11.7	57.0
Kodiak .....	48	30.0	54.3
Coal Harbor .....	20	28.0	52.6
Dutch Harbor .....	23	32.1	51.3
Dillingham .....	24	16.0	55.5
Bethel .....	17	7.6	54.4
St. Paul Island .....	38	24.9	45.9
Nome .....	34	3.3	50.0

<sup>1</sup>Minus sign indicates below zero.

<sup>2</sup>Record taken at Experiment Station, four miles westnorthwest of Fairbanks and fifty feet higher elevation.

### Coast Region

This belt extends from the southern boundary of Alaska, latitude 54° 40' North, longitude 131° West, to the Seward Peninsula, which lies at the entrance to the Arctic Ocean. There is great variation in precipitation throughout this belt as is shown by the figures given in the Tables. Beginning with the southernmost places for which there are records and following the coastline to Nome, the average annual precipitation, including melted snow, and also the mean and extreme temperature from warmest to coldest during the same period of years, is shown in the Tables. The section of the coast north of the Alaska Peninsula is not regarded as having any agricultural possibilities at this time.

It should be particularly mentioned that the abundant precipitation of the coast region south of the Alaska Peninsula is conducive to luxuriant vegetation. A heavy growth of grass is found wherever it is not crowded out by trees. The ample rainfall enables spruce, hemlock, and cedar to attain large size and to maintain a foothold on the steep mountain sides where there is but little soil. All forms of hardy vegetables thrive well in this coast belt, but grain growing is not a success. The rains keep grain crops green and growing beyond the period when they ought to mature, except in rare seasons which are drier than normal. Usually the fall rains prevent the farmer from saving his grain after it has matured. Except in a few limited areas, as for example, in the Haines country, where the rainfall is comparatively light, grain growing is not likely to be a success on the coast.

### Interior

As compared with the coast region, the interior has a light precipitation, cold winters, and comparatively warm but short summers.

The noteworthy feature of the interior as compared with the coast region, is the much lighter precipitation of rain and snow. The growth of native trees and shrubs is not so luxuriant, but more nearly approaches that found where normal crops of grass and grain are grown in the States, and while a drought is unknown in the coast region, it is not unusual for the interior to suffer from a period of dry weather. Lowest precipitation generally occurs during the late winter and early spring months and extends into June. It is evident that crops are not materially affected by the lack of precipitation during early spring;



in fact, there is an advantage from the cropping standpoint because seeding may progress uninterruptedly. During July and August precipitation is on the increase; consequently, very often when crops are ripening, there is considerable rainy, overcast weather which may seriously interfere with getting the harvests in. Usually, however, there is sufficient dry autumn weather for crops to be harvested with little or no loss.



Breaking new land in the Tanana Valley. After the forest cover is cleared, the brush and moss is turned under with a heavy breaking plow to contribute to the organic reserve of the soil.

Continued rains in the coast region frequently interfere with farm work. On the other hand, extreme cold weather in the interior, where the temperature sometimes falls to  $-66^{\circ}$  F., or lower, restricts outdoor activities. However, this does not affect farm work to any noticeable extent since there is no field work that can be done in the winter. The summers are sometimes uncomfortably warm in the interior—the temperature at Fairbanks has occasionally reached  $96^{\circ}$  F., but these hot spells are of short duration.

The precipitation above referred to includes both rainfall and melted snow, and both vary greatly from year to year, as well as with the locality. In Prince William Sound, for instance, the snowfall is usually rather heavy, reaching at times as much as 20 feet or even more during the winter; but in South-eastern Alaska there is comparatively little snow at sea level. The records show several winters at Sitka had less than a foot of snow on the ground at any time.

In the interior the snowfall varies in like manner with local conditions. At Fairbanks the normal snowfall is about four feet. Snow begins to fall in October and gradually accumulates during the entire winter until the total amount measures between three and four feet. However, there is an occasional year with very heavy snowfall, as for example, the winter of 1936-1937 when

during January alone the fall of snow amounted to 65.6 inches. The total snowfall for the winter was 133.5 inches, but due to warm spells and some rain, greatest depth of snow was 62 inches on the level. There is sometimes a thaw during the winter, which never lasts long enough, however, to melt the snow from the ground. A comparatively heavy snowfall is a decided advantage to the farmer because it protects his winter crops from the effects of extremely low temperature.

### The Arctic

The climate of the Arctic region is unfavorable to the growth of farm crops. Although the total annual precipitation is only five to ten inches, the tundra regions are wet throughout the summer. The mosses and lichens abounding in the region form an insulation that keeps the ground, except for some few inches at the surface, perpetually frozen for several months in summer. Even so, by intensive ground preparation on small areas, lands above the Arctic Circle, such as Shungnak and Wiseman, produce excellent vegetables.

### AGRICULTURAL AREAS

Alaska is estimated to contain approximately 65,000 square miles of tillable land which can be made available for crops and an additional 35,000 square miles suitable for grazing. The total agricultural area is, therefore, approximately the size of the total area of the States of Pennsylvania and New York together, or of Oregon alone. The principal farming areas are found in the Matanuska Valley, the Kenai Peninsula, the Tanana Valley, the Upper Kuskokwim, and parts of the main Yukon Valley.

A considerable body of agricultural land lies north of the Tanana River, between the Tanana and Fortymile, and more particularly along the South Fork of the Fortymile River. It has been estimated to contain 750,000 acres. This may still prove to be a highly productive region when developed, but as yet this large area has no transportation facilities worthy of mention. The Bates Rapids in the Tanana River, some distance beyond Fairbanks, are of such a nature that only small and very powerful boats can pass them, and due chiefly to this cause there are very few boats that navigate to the Upper Tanana.

Certain areas at the head of bays and in the river valleys in Southeastern Alaska produce truck crops, and some of the grassy tide flats are utilized for grazing. The treeless islands of Southwestern Alaska and the plateaus in the mountains near Healy give promise of being suitable for range stock.

Alaska has no prairies such as characterize the middle-western United States. Practically every foot of soil has to be cleared before it can be put under cultivation. In the coast region, as far west as Cook Inlet, there is a heavy growth of timber, and clearing is ordinarily too expensive at this stage of development. A half century hence the settler may encroach upon the forest in this region. West of Cook Inlet there is comparatively little timber, but there is a wealth of small bushes and grass. This region will, therefore, be suited chiefly to stock raising. As interior valleys are covered with timber, bushes, and moss of a much lighter growth than is found in the coast region, clearing is easier. Timber has been heavily drawn upon for fuel, lumber and mining. Fires have destroyed even larger amounts, particularly of south slope land. Consequently, much desirable homestead land is lacking in timber for

building purposes and sometimes even for firewood. Such land is easier to clear than where virgin forests exist but the depletion of organic matter must be taken into account. The settler must fix the fact in his mind that wherever he goes the good land must be cleared of a more or less heavy growth of timber and bushes before it can be made ready for cultivation. The use of bulldozers and heavy plows has greatly reduced the cost of putting land into cultivation.

Soil erosion and soil depletion are, however, already taking a toll from the Alaska farmer. Here, as elsewhere, unwise clearing and careless land use may ultimately invite abandoned homesteads and broken hopes. On the other hand, Alaska soils are for the most part of such a nature that they can be expected to respond to good management as well as most, and better than many.



Basin listing sloping land on the contour at the Agricultural Experiment Station.  
Lister plowing on the contour helps to conserve moisture and prevent erosion.

### Matanuska Valley

**LOCATION**—The Matanuska Valley is located between parallels 61° and 62° North latitude and meridians 149° and 150° West longitude. It is bounded on the north by the Talkeetna Mountains, on the east and south by the Chugach Mountains, and on the west by the vast level plain of the Susitna River. It lies at the head of Knik Arm of Cook Inlet about 125 miles in a direct line from the open south coast of Alaska, and is traversed by the Alaska Railroad.

**CLIMATE**—The latitude of the Matanuska Valley gives it long winters, short summers, and a great variation in the length of the day between winter and summer. At the summer solstice the sun is below the horizon for only a few hours, and during this time there is no real darkness. The climatic conditions in this valley are transitional between those along the coast and those in the interior. Grain can be ripened as in the interior, but the winters are milder and the growing season longer. The climate is influenced principally



by the relatively warm waters of the Pacific Ocean on the south, the Alaska Range beyond the Susitna Plains on the west, the Talkeetna Mountains on the north, and the Chugach Mountains on the east. The moisture-laden winds from the Pacific Ocean come up Cook Inlet to sweep against the high mountains and determine the precipitation of rain and snow over the entire region. On the other hand, the effectiveness of the mountains as barriers to the passage of moisture is indicated by the veil of fog and cloud that hangs so frequently over the southern slopes of the peaks in contrast with the prevailing clear atmosphere and cloudless skies of the northern slopes of the Alaska Range.

Under the modifying influence of the surface features and the warm coastal waters, the region has temperate summers, fairly cold winters, and a moderate rainfall. The climate lacks the extremes of temperature and the light precipitation that characterizes the great interior valleys of the Yukon and its tributaries. The mountain ranges protect the region against the fierce blizzards from the Arctic regions. Because of the protection afforded this region by the mountains on three sides, travel is almost always easy in the Matanuska Valley. The region is free from tornadoes and severe electrical storms. In fact, thunder, lightning, and hail occur so rarely as to be almost unknown in the Matanuska Valley.

The spring and early summer months have the lowest average precipitation, and July, August, and September have the heaviest. The normal low precipitation for the early summer is not usually detrimental to crop growth. Wind storms of sufficient intensity to cut the snow from cleared and exposed places, while not common, occur frequently enough to endanger the life of exotic perennials such as ornamentals, legumes, and bush fruits. During May, as the fields dry and are prepared for seeding, occasional winds cause discomfort by blowing the fine soil from the fields, a condition that may be aggravated if



A settler's first crop of hay, Matanuska Valley. It has been put up on poles to expedite curing.



and when larger areas are cultivated. Droughts of some severity have occurred in this region since farming was begun, but none of sufficient duration to cause crop failure. The rainfall in the latter part of the summer comes for the most part in light showers with much cloudy weather, often sufficiently so to be unfavorable for curing hay. At such times the hay is placed on racks or piled in cocks on poles set firmly in the ground.

There are 14 possible hours of sunshine per day beginning April 15. The days gradually increase in length, May 15 having 17 possible hours of sunshine, and June 15 about 20 possible hours. For several weeks after June 15, there is practically no darkness. After June 22 the days begin to shorten, the decrease being at the same rate as was the increase before that date.

The total annual precipitation ranges from 13 to 18 inches. Less than half of this falls during the winter months as snow and rain. Warm spells are of rather frequent occurrence during which snow may be entirely melted or reduced to a sheet of ice. It is due to such periods, as well as to the winds that sweep the ground bare of snow, that many perennial plants are sometimes killed or weakened. The summer rainfall, while not large (from 8 to 11 inches), is ample to supply crop needs, as the rather low summer temperatures and moderate winds are not conducive to rapid drying of the surface or to heavy loss of water by plant transpiration. Also while daylight hours are extensive, much of the time the sky is overcast.

**TOPOGRAPHY AND SOIL**—The topography of the Matanuska Valley consists mostly of benches and lowlands with occasional irregular ridges of glacial formation. These benches and lowlands embrace a variety of soils ranging in composition from silt loam through fine sand to peat, and in drainage, from well-drained bench land to water-soaked marsh. To be cultivated, the greater part of the land must be cleared of timber, undergrowth, moss, and any other thick covering of vegetation that may be present.



The Matanuska Sub-Station No. 1 from the air. The benchland topography and relatively heavy forest growth are well shown in this photograph.

Exclusive of muskeg and muck, there are two broad divisions of soil in the Matanuska Valley; the bench-land soils and the stream-bottom soils. According to Bennett and Rice,<sup>1</sup> the former division comprises mainly the Knik loam series and the soils represent material which evidently has undergone considerable attrition by water or glacial action, or both, mixed, especially in the surface portion, with varying quantities of volcanic matter.

Chemical analyses show that all the soils are well supplied with calcium; in fact, it is higher than that of the average soil in the humid portions of the United States.

The region, consisting of bench lands varying in width from a hundred feet to several miles, constitutes a great irregular plain that is continuous except for the interspersions of connecting bodies of water and essentially uniform in its principal topographic characteristics. This plain rises through successively higher benches, step-like, from a few feet above high tide to a maximum elevation averaging probably 1,200 feet above sea level, where it merges with the flanking mountain slopes. The greater part of the bench land is probably about 25 to 200 feet above sea level. In some places the benches attain elevations of 2,000 feet. A common characteristic of the benches of the plain along the stream courses is their arrangement in V-shaped fashion, converging upstream with their escarpment lines spreading out symmetrically from the apex downstream.

**DRAINAGE**—Owing to the sandy gravelly nature of the soils and subsoils, the bottom lands drain quickly. Alternate strips of deep sand and soil underlain at shallow depths by gravel have excessive drainage, and on these soils crops suffer from lack of moisture in dry seasons. On the other hand, the numerous swales and depressions require ditching to establish such drainage conditions as will be favorable for agricultural use of the land, except for pasturage and hay production. Probably 75 per cent of the bottom land is sufficiently well drained to permit cultivation without ditching.

Large bodies of land that vary all the way from excessively wet to excessively drained occur throughout the main part of the plain in the non-alluvial portion of the valley. The moisture conditions are determined very largely by the position and character of soil materials.

The good agricultural lands, such as the benches, rolling lands, and ridges are made up of the Knik loam soils, which mostly have well established drainage even in localities far removed from streams. All these soils are gravelly in the substratum, consequently showing as nearly perfect internal and downward drainage as is possible.

Ditching is not necessary except when it is desired to give an outlet to the lower depressions. The deeper loams, such as the typical Knik loam, hold sufficient moisture, especially with proper soil management, to meet the requirements of all crops in ordinary seasons. It is estimated that 75 per cent of the more valuable farm land of this region is well drained and capable of conserving ample moisture for crop needs.

**CROPS**—Cereal crops such as spring wheat, oats, and barley grow well in the Matanuska Valley. The yield per acre for the past six years has been 22 bushels for wheat, 36 bushels for oats, and 25 bushels for hullless barley. The usual time for seeding grain is about May 15, and the harvesting time is about

<sup>1</sup>Hugh H. Bennett and Thomas D. Rice, *Soil Reconnaissance in Alaska, with an Estimate of the Agricultural Possibilities*, U. S. Department of Agriculture, Bureau of Soils, 1915, pp. 16, 48.

September 1. The early wheat such as Siberian will ripen in less time and can often be harvested by August 20. This quick maturity allows time for the grain to dry and harden before freezing weather.

Oats are grown both as a grain and as a hay or silage crop. Varieties that mature early are preferable for grain even if they are not so tall or as high in yielding capacity as other varieties. Owing to the comparative coolness of the summer days, the harvest usually begins after the warmest part of the summer has passed.

It is sometimes difficult to cure oats in the shock because the plants are green, and the air is kept cool by frequent light showers. Oats for hay are cut and shocked before they are mature. Experience has shown that the crop cures more readily in bundles of not more than six to each shock than if it is cut with a mower and put in cocks.



Oats at the Matanuska Sub-Station No. 1. View is toward Knik Glacier, in the left background.

The main hay crop consists of oats, peas, and vetch. The crop is cut with a mower and put up in small cocks over stakes set into the ground for the purpose. A large spike is driven through the stake so as to be about a foot above the ground after the stake is set. This prevents the hay from settling onto the ground and also causes the outside to hang so as to shed rain.

Oats and peas constitute the main silage crops. The oat varieties used require a longer number of days to mature than do oats which are grown for seed, the object being to obtain as much forage as possible. Canadian field peas are seeded in the mixture, which yields from four to six tons of silage material per acre on average soils. This crop is always dependable because it can be harvested at any stage before maturity and taken from the field regardless of weather conditions. The cost of putting up silage at Matanuska ranges from \$4.00 to \$5.00 per ton.



Spring wheats of the earliest types can be matured. Difficulty is sometimes experienced in curing the shocks in the field owing to the moist fall climate. At present there is little demand for spring wheat in the immediate neighborhood other than as feed for poultry, hogs, and part of the grain ration for dairy cows.

Barley has proved to be valuable as grain feed. It grows well on all the upland soils and can be used as forage and as a grain crop. As a grain crop it takes the place of corn for fattening hogs and cattle.

Winter rye can be grown successfully. It is sown the latter part of July and matures in August of the following year, occupying the field for two seasons. At present this crop is not grown to any great extent.

Since the beginning of agriculture in Alaska, the potato has been an important crop. Unfortunately, from the marketing standpoint due regard has not always been given to the character of the soil or to the variety. On well-drained soil, particularly with a southern exposure and properly fertilized, excellent crops are grown. Early varieties are best, such as those belonging to the Irish Cobbler, Early Ohio, and Triumph groups. Yields of excellent quality tubers ranging from 300 to 400 bushels per acre have been harvested from the above varieties. Much of the soil in the Matanuska Valley is excellent for potato production, and the crop well deserves to be given a prominent place in farm operations here.

Root crops like mangels, carrots, and rutabages yield abundantly. These crops are used as winter succulents to supplement silage or to take the place of silage where the farmer is not equipped with a silo.

Clovers of many varieties have been tried extensively. Results have been inconclusive in regard to over-winter hardiness. In favorable years Alsike, sweet clover (biennial), and a red clover of Russian origin have survived in good stand and produced excellent yields. At present, hope centers in the Russian variety. Seed, however, is unobtainable commercially. It devolves, therefore, upon the Experiment Station to grow the clover and thus make the seed available. This is being done, but since the original amount of seed was small, several years will be needed to produce an appreciable supply for distribution.

Alfalfa of the hardiest kinds obtainable has been tried with varying success. The harder purple flowered sorts, such as Grimm, Cossack, variegated, and Ladak live over under favorable conditions. Snow cover is undoubtedly essential, and soil with sufficient available lime contributes to winter survival.

A yellow-flowered, sickle-podded variety of Siberian origin has proved winter hardy, but the plant has a rather spreading growth which detracts somewhat from its value as a hay crop. It is also slow in establishing itself and does not seed abundantly or with certainty. Once established in a favorable location it is very persistent and will stand considerable pasturing.

The most important legumes now being grown by the farmers in the Matanuska Valley are field peas and annual vetches. Canning peas have done well in the Valley and return good yields throughout the Territory.

All trials of fruit trees, such as apples, plums, and cherries, have given decidedly negative results. In favorable locations Dolga crab apples have lived for a number of years at the Matanuska Station. They have bloomed freely and ripened fruit. Many other kinds of hardiest trees obtainable have lived for a few years only. In Anchorage and at points on the Kenai Peninsula some very nice appearing but immature apples have been on display at fairs. At

Sitka, where the climate is quite mild, much experimental work was done with a wide assortment of fruit trees. Even there results were not such as to encourage commercial plantings.

Bush fruits, however, do remarkably well. Heavy yields of currants, red, black, and white, are grown annually. Gooseberries do almost as well but are subject to occasional winter injury. Raspberries, red varieties, produce splendid crops, but also suffer from cold if planted in an exposed situation. Strawberries are an annual crop. All plants in the Valley that have so far proved hardy come from hybrid stock that originated at Sitka years ago. Even these hardy plants are occasionally winter-killed when and if the ground is swept bare of snow. Nevertheless, there are beds that have borne fruit for a number of years with and without care.

Exotic ornamental shrubs such as Siberian pea tree, bush honeysuckle, Japanese rose, and certain species of cotoneaster are without question hardy and desirable. Less hardy are lilacs, artemesia, golden elder, mountain ash, and May day tree. Many herbaceous perennials are sufficiently hardy to warrant planting, such as delphinium, columbine, peonies, dicentra, and gypsophylla. Extensive plantings have been made at the Matanuska Station, but many of the plants perish even where conditions are less exacting. Repeated trials are justified.

**LIVESTOCK**—Beef production may be profitable where the ranch is located adjacent to summer range.

**DAIRYING**—Dairying is destined to become the major farm industry in the Matanuska Valley, with Guernseys the principal breed of dairy cattle now in the Valley. Grain grown locally and fish meal produced at the canneries are used for concentrates. Oats and peas seeded in mixtures for hay and silage are the principal roughages used for winter feed. Cultivated grasses are used for hay and also for summer pasture. There is an excellent market for whole milk, butter, cream, cottage cheese, and ice cream mix. At present the demand far exceeds the supply. Dairy products are handled cooperatively through the creamery at Palmer.

**HOGS**—Most of the common breeds of hogs including Duroc Jerseys, Hampshires, and Chester Whites thrive well in the Matanuska and Tanana Valleys. They are prolific, and it is quite common for sows to produce from six to ten pigs per litter. They are usually bred to farrow about May first, and the hogs are free from most diseases commonly found in farming sections in the States. By the first of November they are ready for the market and weigh between 190 and 225 pounds providing they have been well cared for. They are usually pastured during the summer on oat and pea pasture, rape, or permanent pasture grasses. Barley is the most common grain used in finishing pork for market since it yields well both in the Matanuska and Tanana Valley and takes the place of corn in production.

**SHEEP**—At present there are about 1000 sheep in the Matanuska Valley. Most of these sheep are of the wool type. Because of the growing demand for dressed lamb and mutton, the mutton type of sheep are gaining in favor. There is abundant forage on the mountain slopes for summer grazing. Winter feeds consist mostly of oat and pea or oat and vetch hays grown and fed on farms in the valleys.



Sheep on a Matanuska farm.

**POULTRY**—Most breeds of poultry do well in the Matanuska Valley. The following breeds of chickens are most popular: White Leghorns, New Hampshire Reds, and Rhode Island Reds. Turkeys, ducks, and geese can be grown without difficulty. It has been found unnecessary to heat poultry houses providing they are well insulated and properly constructed. During the winter months most farmers use artificial lights in the poultry house. It is possible to produce all the grain needed for poultry with a good source of protein available in locally produced fish meal at reasonable prices. There is a good market for eggs and all kinds of dressed unfrozen poultry meat.

Excellent results with turkeys both at Matanuska and Anchorage show the possibilities in this phase of poultry farming. The dry weather of spring is favorable to the poults at a time when they are sensitive to wetness. As with chickens, suitable feed can be raised. In the fall there is a ready market for prime birds.

**BEEKEEPING**—The earliest recorded attempt at beekeeping was at Sitka before the establishment of the experiment station there when a priest of the Russian Church imported several stands. In 1905, the Experiment Station made a trial with one stand. Neither attempt was successful and it was concluded that the climate was unsuitable at that place. A resident of Wrangell reported in 1929 that a swarm of bees kept primarily to pollinate fruit trees produced 210 pounds of honey. At Haines, also in Southeastern Alaska, bees have been kept for several years and yields of 50 pounds of honey per stand have been reported. In nearly all of these cases the bees did not winter successfully. Either the colony was completely dead in the spring or so weakened that they were unable to recuperate fully in time to produce much honey.



Successful beekeeping has been carried on in the northern States and in Canada by shipping bees in package every spring from a southern point, thus eliminating the over-winter hazard. With this encouragement and example, several packages of bees were shipped in from California to the Matanuska Sub-Station in the spring of 1936. Four stands produced some excellent honey and this indicates that such enterprises would be successful at least during the better seasons such as that of 1936. Flowers producing nectar are sufficiently abundant to allow the bees to gather a good supply. This is particularly true where fields of clover are available. One of the drawbacks to beekeeping here is the low temperature which often prevails during the working season. The season was considered ended August 24, at which time the average net weight of four stands was 106.5 pounds of comb and honey.

**MARKETS**—The principal market for products raised in the Valley is in the city of Anchorage and at the army base adjacent to the city. The city is 43 miles distant by rail and 48 miles by highway. Some gold and coal mines, within easy reach by truck, offer a considerable market. Army and navy bases now being placed in the Territory have temporarily expanded the market prodigiously during the construction period but even after the close of the active defense work, the military occupancy should be a substantial feature of the permanent market. Most of the food products that could be grown here are now shipped in from the States.

**TRANSPORTATION**—The Matanuska Valley is traversed by the Alaska Railroad, which extends from Seward, the ocean terminal, through railroad headquarters at Anchorage and on to Fairbanks, a distance of 470 miles. Within the last two years an extensive building program of the Alaska Road Commission has produced a network of well graded and in places gravelled roads. In the main settled portion every settler has immediate access to a graded road. Snow plows are operated and roads quickly opened particularly over routes traveled by school busses. A good auto road connects Anchorage and Palmer. A road now under construction will connect the road system of the Matanuska Valley and Anchorage with the Richardson Highway lying further east. This will give Matanuska a highway connection with the coast port of Valdez and the interior town of Fairbanks.

## Tanana Valley

**LOCATION**—The Tanana agricultural region lies 240 miles directly north of Matanuska and beyond the rugged Alaska Range. It is bounded by the parallels 64° and 66° North latitude and the meridians 146° and 149° West longitude. It covers the portion of the Tanana Valley between Big Delta near the mouth of Goodpaster River and the confluence of the Tanana and the Yukon. Its length is approximately 205 miles air line. The maximum width of this section of the Tanana Valley is 70 miles. Its area of 7,000 and more square miles, or 4,480,000 acres, includes bottom or valley land, bench land, and some terrace land. Naturally, there are many acres not suitable for farming, such as stream beds, lakes, and swamps.

**CLIMATE**—The frost-free period in this region extends from about May 20 to September 5. For the years 1932-40, inclusive, the highest temperature recorded at Fairbanks was 99° F., and the lowest was -65° F. During the growing months beginning with May, the normal temperature shows a steady rise, reaching its peak in July.

The winters are cold and during the two months of lowest temperature, the normal average for 1932-40, inclusive, ranges from  $-4^{\circ}$  F. to  $-18^{\circ}$  F. in December, and from  $-1^{\circ}$  to  $-22.5^{\circ}$  F. in January. The winter weather is healthful and invigorating, and the air is crisp and clear. The average annual snowfall for the past eight years was 59.39 inches. Winter winds are not common and the snow does not drift appreciably. It is usually light and feathery and remains in this condition for most of the winter.

During the growing season the days are long. On May 1, the sun rises about 4 a.m.; on June 1, at 2:30 a.m.; on July 1, 1:30 a.m.; and on August 1, at 2 a.m. The sun sets on May 1 about 9:30 p.m.; on July 1, at 10:30 p.m.; and on August 1, at 10 p.m. During June and July and parts of May and August, twilight is continuous throughout the short night.

Total precipitation ranges from 8.5 to 16 inches with approximately a half of it coming during the growing season. However, because of the lower temperatures and a favorable evaporation-precipitation ratio, cereal crops can be produced with as little as 8 inches of total precipitation advantageously distributed.

Dry weather in late spring and early summer sometimes checks plant growth to such an extent as to cause low yields, or subsequent moisture may prolong the growth and thus lessen the chance of maturity and increase the danger of frosts either before cutting or later. Drizzling rains and cloudy weather are common in late summer and may cause difficulty in curing hay. It is believed, however, that freshly cut vegetation does not deteriorate as rapidly in rainy weather here as it does farther south.

**TOPOGRAPHY AND SOIL**—Most of the land in the Tanana region is hillside or old river bottom land. Hillsides with a southern exposure are considered to be the most desirable for farming because crops grown on them mature earlier than do those on river-bottom lands. The lowland soils are productive and yield good crops of forage. They are prevailingly sandy, either from the surface downward or in the subsoil, and a large proportion have sand over the surface, or from near the surface downward. The soil materials are mixed in diverse proportions and the surface soil is intermingled with varying quantities of vegetable matter in different stages of decay. Soils in the Tanana Valley are in general less acid than are those of the Matanuska Valley. Some of the valley soil produces a fine quality of potatoes when it has good drainage.

"The Tanana very fine sand is the most extensive soil in the Tanana bottoms. More of it was seen than of all the other bottom soils combined. It occurs through the entire extent of this great lowland area, but is relatively more abundant along the streams, where there are many broad belts which do not include any important bodies of other soils. Spruce attains a surprisingly large size on this soil, showing no more tendency to a scrubbiness over large areas than on the heaviest types, perhaps not so great a tendency. Trees 18 inches or more in diameter near the ground are common in many places. Birch is of some local importance, but it is considerably less abundant over this land as a whole than on the more loamy soils. The Fairbanks silt loam is distinctly a slope soil. In physical characteristics it conforms very closely with the brown loessial soil, Knox silt loam, which is one of the great farming soils in Illinois, Indiana, Iowa, Missouri, Nebraska, and Wisconsin. The Fairbanks silt loam is the best all-around agricultural soil seen in the interior of Alaska. It is well



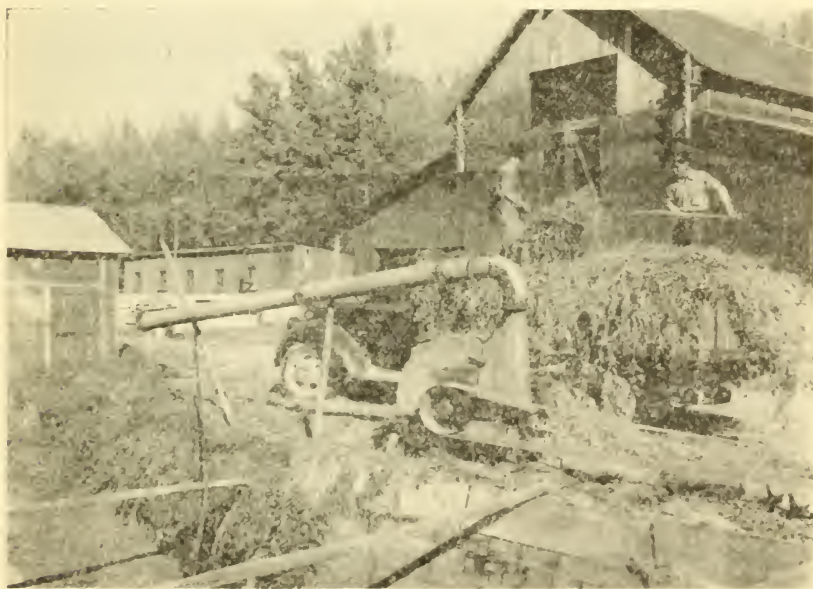
drained, yet retentive of moisture, shows only a moderate degree of acidity in either the surface soil or subsoil, is easy to cultivate, and is productive."<sup>1</sup>

**CROPS**—The most important farm crops in the Tanana Valley are grain, hay, and potatoes. Oats and barley are grown both for grain and for forage. Seeding is usually completed by June 1, and the crop is harvested by September 1. The yield for oats ranges from 36 to 75 bushels per acre, with an average of about 50 bushels. When early varieties are grown for grain and are sown sufficiently early, they may be depended upon to mature every year. Earliness in maturity is not important when the crop is grown for forage.

On good soil wheat gives an average yield of 20 to 25 bushels per acre. Early varieties, such as Siberian, Reward, and Garnet are matured without difficulty. Only spring wheats are grown in this region.

Barley yields from 20 to 30 bushels per acre, with an average of about 25 bushels. It grows well and the grain is an important crop for dairy cows and hogs.

Hay is mainly a mixture of oats and field peas as in the Matanuska Valley. Bottom land is best suited for this crop. Yields up to three tons per acre have been secured. For tonnage, seeding is best done during the first ten days in June. A general practice is to cut the crop either with mower or self-binder in September before hard freezing weather. If mowed, the hay is "staked." If cut with a binder, the bundles are placed in small shocks. Drying proceeds slowly, but the cool weather checks mold. Such hay generally has a very high color and is very nutritious. Dairy cows at the University Farm fed exclusively



Filling the trench silo at the Fairbanks Experiment Station with green oats and peas.

<sup>1</sup>Hugh H. Bennett and Thomas D. Rice, *Soil Reconnaissance in Alaska. With an Estimate of the Agricultural Possibilities*, U. S. Department of Agriculture, Bureau of Soils, 1915, pp. 131-148.

on such hay were maintained in good milk flow. Silage made from oats and peas planted together, as in Matanuska, has proved a good source of winter succulent feed and is used on all the dairy farms in the Tanana region.

What has been said concerning alfalfa and clover in the Matanuska Valley applies to this region. Only the yellow-flowered alfalfa of Siberian origin (*Medicago falcata*) has shown dependable hardiness. As proof there is a field of several acres at the abandoned Agricultural Experiment Station at Rampart on the Yukon River which has maintained itself for over twenty years during which time several hay crops have been taken by a local resident. This same variety of alfalfa is giving promise of success at both the Fairbanks and Matanuska Stations. Ladak and Grimm alfalfa have withstood the winters at Fairbanks for three years somewhat successfully.

Wherever the timber is destroyed and the surface vegetation uprooted, as in building roads, native grasses come in and flourish.



Potato variety experiment at the Fairbanks Station. The crops have been grown on the contour, rather than up and down the slope as is customary.

One of the chief crops of the Tanana Valley is potatoes. From the beginning of agriculture here, potatoes have ranked as the chief cash crop. On the market they have met stiff competition from Washington and other Western States. This competition has had a salutary effect since it has emphasized the need for growing potatoes on southern slopes to take advantage of better drainage, warmer soils, and the longer growing season. Where this has been done and early varieties grown, the quality has met all market requirements. Average yields run from four to seven tons although yields of ten to twelve tons of marketable tubers per acre have been produced commercially. The prices obtained range from \$2.50 to \$5.00 a hundred pounds.

Hardy vegetables for the home can be produced in family gardens. Both quality and quantity are assured where properly cared for. Garden vegetables such as cabbage, cauliflower, radishes, lettuce, beets, carrots, celery, beans, parsnips, onions from sets, turnips, rutabagas, and peas do well and are of excellent flavor. Tomatoes, melons, and cucumbers must be raised in green-

houses or cold frames. Corn in the Matanuska Valley has reached roasting ear stage on an average of two years out of five, but in the Tanana Valley it seldom does as well.

Peas are an assured crop. In the sandy bottom land, the vines make a strong growth and produce bountifully. On the stiffer slope soils, earliness is accentuated somewhat at the expense of vine. Seed of many of the early varieties, such as Alaska and Gradus, has been produced regularly over a long term of years.

Currants, either red or white fruited, produce dependable crops, the latter out-yielding the red. Best results have been secured on bottom land. Snow cover is essential. A bank of peat around each bush is helpful and should be left there permanently. The black currant is less hardy than the red or white. Red raspberries have been grown many years commercially. South slope land has produced excellent crops. A good mulch of straw is helpful to prevent too rapid drying out of the soil. Winter protection is usually given by laying the plants or bending down and covering with coarse litter.

Strawberries of hybrid origin have produced excellent crops. This fruit is grown mostly in gardens for home use. One rancher produces strawberries on a commercial basis selling fruit readily at a fair price. Loss of plants due to winter injury is of infrequent occurrence. At the abandoned Rampart Station, a small uncared for field has produced crops for over twenty years. Wild fruits such as high and low bush cranberries, red raspberries, red currants, and blueberries are fairly plentiful.

**ORNAMENTALS**—A number of exotic ornamentals are available for home beautification.



The Holstein dairy herd at the Fairbanks Station.



**LIVESTOCK**—This region is also well suited to dairying. Summer pasture is available for four months of the year; during the rest of the time livestock must be hand fed. Oats, barley, peas, vetch, native grasses, brome grass and other cultivated grasses are all grown for winter feeding and pasture. Because of the cold winters, all dairy barns should be well constructed and insulated. Three dairy herds are maintained in the valley, two commercially and one at the University Farm. Holsteins and Guernseys are used in commercial dairy herds.

Hogs can be produced profitably in the Tanana Valley. During the summer they may be pastured and in the fall fattened on barley, wheat, and peas. Principally American Hampshires are raised. Hogs do as well in the Tanana Valley as in the Matanuska Valley, and there is a ready market for pork at Fairbanks.

**MARKET**—The thriving town of Fairbanks is in the heart of this agricultural region. From here the mining camps within a radius of several hundred miles are supplied with provisions. Sixty miles from Fairbanks is the town of Nenana where products are sent for shipment by river steamboats down the Tanana and Yukon Rivers. The development of the Ladd Field Air Base has increased the market for all farm products.

**TRANSPORTATION**—Fairbanks is the northern terminus of the Government owned Alaska Railroad. Trains are operated throughout the year between Fairbanks, the largest town in interior Alaska, and Seward, seaport of the southern coast. Two long automobile highways extend out from Fairbanks. One of them, the Richardson Highway, 370 miles long, links Fairbanks with Valdez, a port on Prince William Sound. The other, the Steese Highway is 160 miles long and connects Fairbanks with Circle on the Yukon River. A network of community roads is found in the vicinity of Fairbanks and around the smaller towns on the Alaska Railroad. Anchorage and the Matanuska Valley will soon be connected with Fairbanks and Valdez by the Chickaloon Highway now under construction. Year round airplane service is provided over the vast area that Fairbanks serves as a marketing center. The Pan American Airways system furnishes air service to some other sections of the Territory and to Seattle, Washington. (See map for landing fields and roads.)

### Other Regions

**SOUTHWESTERN ALASKA**—The agricultural regions of Southwestern Alaska lie in the Alaska Peninsula and the treeless islands beginning with the Kodiak-Afognak group and thence extending westward and including the Aleutians.

The lower slopes of the mountains have a heavy growth of several types of grasses and moss-like plants that offer a good range for cattle during the summer. Beach rye and sedges on large grass areas at the heads of bays can be harvested for hay and silage. Mowing machines can be used for this work where the areas are not cut too deeply by small streams. These grasses make dense growth and attain a height of about four feet.

Numerous attempts have been made to raise livestock on the islands beyond Kodiak Island, but nearly all have failed principally because of the lack of regular, reliable transportation. The distance from Seattle to Unalaska is more than 1,000 miles and requires six days by direct route or nearly two weeks via Seward. Freight charges for provisions are almost prohibitive because of the

great distance. Mail steamers beyond Kodiak arrive only once a month, and obviously fresh meats and vegetable are luxuries to the white people living in these localities. The last steamship dock to the westward is at Unalaska. Harbors at the settlements are poor, and the sea in this region is heavy nearly every month of the year. Ranchers must provide themselves with small boats for transportation between their ranches and the nearest steamship dock. When storms are too heavy, provisions and mail must remain aboard ship and be delivered a month later. The heavy waves would swamp small boats in their attempt to reach the mail steamer. The small rancher will find it impractical to locate west of Kodiak Island until additional shipping facilities are provided.

**KENAI PENINSULA**—The western part of Kenai Peninsula between Cook Inlet and the Kenai Mountains contains some of the best agricultural land in Alaska. The climate is never severe, being neither extremely cold in winter nor hot in summer. It is tempered by the warm winds from the Pacific Ocean, which is less than a hundred miles to the south in a direct line. The same kind of crops that are produced in the Matanuska Valley can be produced here. The area of good agricultural land is more extensive than that of the Matanuska Valley, and this region is attracting a large number of settlers.

The development of this region is destined to lag until more economical transportation facilities can be provided. On account of the shallow waters which border the shores of Cook Inlet, large ocean vessels must anchor from three to five miles out. Small boats go up the Kenai and Kasilof Rivers for short distances on high tides. During the winter when the rivers are frozen over, practically no transportation facilities are available for the larger portion of this valuable agricultural land. If and when a highway connects the towns of Homer, Ninilchik, Kasilof, and Kenai with the Alaska Railroad, this region will undoubtedly become more settled.

**SOUTHEASTERN ALASKA**—Southeastern Alaska is for the most part non-agricultural. Its population is greater than any other section of the Territory, and limited areas of untimbered land at the heads of bays are being utilized for the production of crops and livestock. Most of the small areas of land under cultivation are near towns and can be reached by small boats. The principal crops grown for the market are carrots, rutabagas, cabbages, potatoes, strawberries, and raspberries. There are about 500 head of dairy cattle in Southeastern Alaska. The largest herds are located near towns, and most of the feed for the animals is shipped from the States. Farmers in more isolated localities depend upon native tide flat grasses for forage for their livestock. The cost of clearing the heavily timbered land of Southeastern Alaska for farm use is prohibitive, and crop growing is, therefore, limited to home gardening, trucking, and the harvesting of hay from isolated grass-covered tide flats.

**HEALY**—An area of about 200 square miles of land on the north slope of the Alaska Range with Healy as a center is believed to be a potential sheep range country. Owing to its elevation this region is treeless. No snow lies on the ground longer than three to seven days at any time because of the high winds. The native vegetation consists of several types of bunch grass and sedges, native redbud, low bush cranberry, blueberry, dwarf birch, and dwarf willow. Enough native hay can be made to supplement the forage the animals obtain on the open range in winter. It is estimated that the carrying capacity of this range is 150 sheep per square mile. Range horses have been overwintered there for several years.

**KUSKOKWIM AND YUKON VALLEYS**—There are many thousand square miles of potential agricultural lands in the Kuskokwim and Yukon Valleys, but owing to their remoteness and inaccessibility, or because the main lanes of travel have become established elsewhere, they will undoubtedly remain undeveloped for a considerable period. These areas are covered with a mixture of white spruce and birch, indicating that they are able to produce crops similar to those now being produced in the Tanana Valley. Results like those at Fairbanks were secured at the Agricultural Experiment Station at Rampart on the Yukon, now abandoned, which was operated for over twenty years.

### WHERE TO LOCATE

Prospective settlers naturally desire to locate in a region where they can make a comfortable living and provide a home for themselves and their families. Persons desiring a particular kind of climate or who wish to follow some specific agricultural pursuit should establish themselves in regions best suited to their liking. Climate, transportation, and markets are the main determining factors in the settlement of any region.

For the profitable marketing of crops, settlers should locate near a town or at least near some point on a railroad. Any place along the Government Railroad will enable settlers to keep in close contact with markets and thereby facilitate the disposal of their produce. The Alaska Steamship Company operates ocean steamships between Seattle, Washington, and Seward, Alaska, making connections with the railroad. The ships run at regular and fairly frequent intervals. The prospective settler should locate where there are sufficient families to support schools and churches and to justify other community services and facilities.

### SCHOOLS AND CHURCHES

The Alaska Territorial school system was established in 1917. It is under the supervision of the Territorial Department of Education with headquarters at Juneau. The Department consists of the Territorial Board of Education composed of five members, the Office of the Commissioner of Education with five employees and a Territorial Textbook Commission. At the present time, there are 17 schools in incorporated towns and 56 in rural areas.

Free schools are maintained by the Department of Interior Office of Indian Affairs for the native Eskimos and Indians of Alaska. These schools are largely vocational.

The University of Alaska is a Land-Grant institution financed in part by the Federal Government and in part by the Territorial Legislature. The University is well equipped and offers courses leading to degrees in agriculture, mining engineering, civil engineering, arts and letters, business administration, chemistry, education, general science, and home economics. Short courses are offered annually in home economics and mining, and mining extension courses are conducted in various towns throughout the Territory. The faculty of instruction number 35, including the president.

For information concerning the University, address the President, Dr. Charles E. Bunnell, or the Registrar at College, Alaska.

Churches of the principal denominations are located in towns and communities with a population of one thousand or more.



## COMMUNICATIONS

Alaska is well supplied with adequate communication facilities. Radio, telephone, and telegraph commerce is handled by the United States Army Signal Corps. Several good commercial broadcasting stations operate from the larger cities, and a network of amateur shortwave stations throughout the Territory further increases the exchange of news and information. Each community has a local telephone system. Newspapers are published in practically every town of more than 1,000 persons and are distributed over the surrounding regions by well developed commercial airplane service.

## HOW TO OBTAIN A FARM

Alaska is divided into three land districts with local offices at Anchorage, Fairbanks, and Nome. Surveys of public domain and all details pertaining thereto are in charge of the cadastral engineering service with headquarters in Juneau. The headquarters of the field service and inspection service of the General Land Office are in Anchorage.

Most of the farms in Alaska are acquired either by homesteading or by purchasing. The homestead laws require, among other conditions, the following:

**First:** That the land desired be agricultural in character.

**Second:** That no person who is not a citizen of the United States, or who has not declared his intention to become a citizen of the United States can make entry.

Any person who is qualified to make an ordinary homestead entry in the United States under Section 2289, United States Revised Statutes, is qualified to make homestead entry in Alaska, and a former homestead outside Alaska does not bar the claimant's right to make entry in that Territory for not exceeding 160 acres.

**Third:** That the homesteader must establish residence within six months of taking up the homestead and must continue it for at least seven months out of each year for three years, six months for four years, five months for five years, or after fourteen continuous months residence he may commute for \$1.25 per acre in order to gain immediate possession.

War Veterans may apply their service record up to two years residence on their homestead claim but must put in the minimum of seven months continuous residence.

**Fourth:** That one-sixteenth ( $1/16$ ) of the area included within the homestead must be cultivated within the first two years after taking the homestead and must be increased to one-eighth ( $1/8$ ) before the end of the third year. The Secretary of the Interior is authorized to reduce the requirement if a satisfactory showing of the reasons for the homesteader's failure to comply with the law is made to him.

**Fifth:** That a habitable house must be erected on the land.

**Sixth:** That proof must be submitted within five years from the date of entry. At the end of fourteen months continuous residence and cultivation of one sixteenth ( $1/16$ ) of the land, the homesteader may commute on his entry by paying \$1.25 per acre for it.

Also that at the time the homesteader makes his entry he is to pay:

Entry fee .....	\$10.00
Commission at 0.0375 per acre .....	6.00

At the time when he makes final proof he is to pay:

Testimony fee .....	\$ 1.80
Commission at 0.0375 per acre .....	6.00
Advertising notice of final proof .....	\$12.00 to \$15.00

Further information may be obtained by writing to the U. S. Land Office at Fairbanks, Anchorage, or Nome, Alaska, for Information Bulletin No. 2, INFORMATION RELATIVE TO THE DISPOSAL AND LEASE OF PUBLIC LANDS IN ALASKA.

Farms are also obtainable through purchase of patented homestead land. A number of good farms which were homesteaded as early as 1915 are now being offered for sale at reasonable prices.

A large area of the public domain in the Matanuska Valley was withdrawn in 1935 for the Federal colonization project established there at that time.

## THE NATIONAL FORESTS

Alaska has two National Forests which cover the heavily timbered coastal sections of the Territory. The Tongass National Forest has an area of 16,080,000 acres and includes nearly all of the land area of Southeastern Alaska. It extends from Dixon Entrance northward to Skagway and Icy Strait. The Chugach National Forest includes most of the Prince William Sound region and the eastern part of the Kenai Peninsula and has an area of 4,800,000 acres. The combined area of the two forests—20,880,000 acres—is slightly less than six per cent of the total area of the Territory.

The Alaska National Forests are under the jurisdiction of the Forest Service. The headquarters are in Juneau, the Capital of the Territory, with responsibility vested in the Regional Forester. The administration is further localized in five divisions, with Forest officers in each division acting under the authority and supervision of the Regional Forester in Juneau.

The work in these divisions is under the administration of Division Forest Supervisors. Headquarters are as follows: Southern Division, Ketchikan; Petersburg Division, Petersburg; Admiralty Division, Juneau; Admiralty Sub-division, Sitka; Prince William Sound Division, Cordova; Kenai Division, District Ranger, Seward.

The Forest Homestead Act makes possible the entry of those lands within the forests which has been classified as chiefly valuable for agriculture. However, farming on the Alaska National Forests, owing to the non-agricultural character of the land, rough topography, expensive clearing costs, heavy rainfall, and isolation by water from markets and schools, holds little promise of any extensive development in the near future. Home gardening in small tracts favorably located is thoroughly practicable, and many kinds of vegetables and berries are grown.

Recognizing the need for something more practical and applicable for Alaska than the general Homestead Law, Congress in 1927 passed an Act which permits the purchase by individuals, who are citizens of the United States, of a homesite of not to exceed five acres of public land in Alaska at \$2.50 per acre. The requirements are legal residence on the tract in a habitable house for a period of three years to the exclusion of a home elsewhere. There are no stipulations as to the amount of land to be cleared and cultivated. This law is taken advantage of by fishermen, miners, laborers, and others, regardless of the character of their employment, who wish a home and garden outside of incorporated cities. The law as passed is not applicable to land inside the National Forests, but on certain designated areas, where permanent settlement seems assured, the Forest Service has made tracts available for settlement under special use permits. After complying with residence and improvement require-



ments for a period of three years on such areas, permittees upon application may have them eliminated from the National Forest and may immediately apply for patent under the Homesite Law referred to above.

Settlers on the National Forests may cut free of charge such timber as is necessary to clear land for cultivation and construct the required improvements.

Bona fide settlers, miners, residents, and prospectors for minerals in Alaska may take free of charge green or dry timber from the National Forests in Alaska for personal use but not for sale. Permits (free) may be required for green saw-timber. Other material may be taken without permit. The amount of material granted under free permit to any one person in one year shall not exceed 10,000 board feet of sawtimber and twenty-five cords of wood, or an equivalent volume in other forms. Timber for commercial use can be purchased as stumpage in practically any quantities desired.

### JUDICIAL DIVISIONS

The Territory is divided into four judicial divisions with headquarters at Juneau, Nome, Valdez, and Fairbanks. Federal district courts are maintained in each Division.



"Fairbanks from the air."

### TAXATION

Land or property outside of incorporated towns is at present not subject to taxation in Alaska. All male settlers between the ages of 21 and 50 years are required to pay a school tax of five dollars per annum. The funds of the Territory are raised by licensing certain industries including fisheries, cold storage plants, and mining. Any resident who owns an automobile which is operated purely for pleasure or for family use is required to pay the Territorial automobile license fee of ten dollars.

## COST OF LIVING

The cost of living in Alaska is somewhat higher than it is in the States owing to transportation charges. This is offset, however, by the higher prices which the farmers receive for their products.

Capital required by the new settler should be sufficient to provide him with living expenses for a year or longer if he settles on new land. The minimum recommended is \$2,500 per family.

Settlers who purchase farms containing some cleared land should be able to receive from it an income sufficient to meet their living expenses for the first year. A small amount of working capital is desirable for the purchase of livestock, machinery, and other equipment.

The prices prevailing at Fairbanks in 1941, as shown in Table 4, will give a general idea of the cost of living at rail points in Alaska.

### TABLE 4

Commodity	Unit	Price
Bread .....	loaf	\$ .25
Butter .....	pound	.60
Eggs .....	dozen	.60
Coffee, Hills .....	pound	.40
Sugar .....	pound	.09½
Flour .....	100 lbs.	6.50
Milk, fresh .....	quart	.25
Milk, evaporated .....	case	4.80
Potatoes, native .....	100 lbs.	4.50
Canned fruits .....	dozen cans	3.75
Dried apples .....	2 lb. package	.65
Dried prunes .....	2 lb. package	.40
Beans, small white and Lima .....	6 pounds	1.00
Beans, Bayo .....	8 pounds	1.00
Bacon .....	pound	.50
Beef .....	pound	.35 to .55
Fork .....	pound	.40 to .50
Kerosene, elaine .....	gallon	.60
Kerosene, pearl .....	gallon	.50
Gasoline, in drums .....	gallon	.28
Gasoline, at service station .....	gallon	.35
Lumber, rough, native .....	thousand feet	55.00 to 60.00
Alfalfa hay, outside baled .....	ton	75.00
Local hay, not baled .....	ton	30.00 to 40.00
Oats, outside feed .....	ton	90.00

Food prices in the coast region are somewhat less than at Fairbanks. Particularly the cost of more bulky merchandise like lumber, hay, and feed, is considerably less. Food prices have an upward tendency at present.

## CHANCES FOR WORK AND WAGES PAID

In most places where labor is employed there are more men who want jobs than there are jobs to be had. At the present time most of the labor employed in Alaska is engaged in mining. For the past two years jobs have been plentiful, but when the military bases are completed, conditions may change considerably.

Machinery has in many cases displaced hand labor and, therefore, decreased the camp unit number of men engaged in mining. Many men are employed in the Fairbanks, Ruby, Iditarod, Circle and Livengood districts and other smaller camps scattered throughout the interior, but the influx of labor

has more than kept abreast of the demand. There is nowhere any hard and fast scale of wages for all kinds of labor, but in general the wages paid in the interior are higher than the wages on the coast. Fishing companies employ a considerable number of men during the canning season. This work is only seasonal. Usually residents of Alaska, where qualified, are given preference on labor in mining, fishing, and governmental projects.



Combining wheat at the Fairbanks Station. This is one of the ways that the labor cost of harvesting may be kept down.

The Alaska Road Commission and the Alaska Railroad employ workmen in considerable numbers during the summer, but recruit their men mainly from residents.

There are as yet but few laborers employed in agriculture. Few of the homesteaders have money to hire labor and, therefore have to depend on their own efforts for the clearing of their land and the erection of their buildings.

The question is often asked: Can the homesteader who locates in Alaska find opportunities to earn enough during the period the law allows him to be absent from his homestead to support him until he can begin to market his crops? This will depend chiefly on the man. Pioneering is always beset with privations, and those who come must face that condition. The man who is capable and willing can ordinarily earn enough in wages to get by while proving up on his claim.

## AGRICULTURAL EXPERIMENT STATIONS

Agricultural Experiment Stations were established at Sitka, Kenai, Copper Center, Kodiak, Rampart, University at Fairbanks, and Matanuska; but only two of these are in operation at the present time—the University and Matanuska Stations. The former is located one mile west of the University and four miles





Dredge used in the large-scale placer mining  
of Interior Alaska.

from Fairbanks. Here particular attention is given to plant breeding, the adaptability of hardy plants, cost of crop production, dairying, and hog raising. Several new varieties of farm crops especially adapted to this northern latitude have been developed. At the Sitka Station, discontinued since 1932, special attention was given to strawberries, potatoes, and bush fruits, as well as tree fruits. Introductions from this last station have been grown in various parts of the Territory.



General view of the Matanuska Sub-Station No. 1 from the west.

The Matanuska Station is in the heart of the dairy region, two and a half miles from the town of Matanuska and nine miles from Palmer. Particular attention is given to the economical feeding of dairy cattle from local feeds. Since good dairy cattle and milk products are high in price, emphasis is being given to the economy of feeding dairy heifers for herd replacement. Investigations in pasture improvement, legume and cereal breeding, trials of cereals and forage crops, rotation systems, potato production and storage, and roughages for the economical wintering of sheep are being carried on.

The increased activity in agriculture over the Territory and the establishment of the Government Farm Colony in the Matanuska Valley have created a decided demand for definite research information applicable to the environmental conditions found in Alaska.

In 1939, an Experiment Station was established eight miles from the town of Petersburg on the Mitkof Highway to do scientific research work with fur bearing animals. This station is now carrying on definite projects having to do with the problems of producing fur bearing animals under confinement. The following problems are receiving special attention: breeding, feeding, housing, management, and disease. The work is being carried on with mink, marten, blue fox, white Arctic fox, and cross fox.



General view of Petersburg Sub-Station No. 2.

Many locations along the coast of Alaska have a plentiful supply of fish with which to feed fur bearing animals. Information available at the present time indicates that fish can form about 70 to 80 per cent of the ration needed to produce good fur.

Some homesteaders on five-acre tracts along the highways leading out of towns in Southeastern Alaska are going into fur farming. With good care and smart management many families could make a comfortable living in the production of fur in coastal Alaska.

The work of the three experiment stations is written up in an Annual Progress Report which is distributed free of charge, upon request, to residents of Alaska.

## EXTENSION SERVICE

In cooperation with the United States Department of Agriculture the University of Alaska carries on agricultural extension work for farmers, homemakers, and 4-H Club boys and girls. The main office of the Extension Service is located at the University of Alaska. District offices are maintained in the Matanuska Valley, where full-time agents in agriculture and homemaking are



Extension Service study group on a farm tour, Matanuska Valley.

employed; at Anchorage, where the 4-H Club leader is located; and at Fairbanks, where the home demonstration leader is located. Farm projects include gardening, livestock production, potato growing, dairying, pork production, sheep raising, and poultry. Home projects include home management, child welfare, nutrition, clothing, canning, and handicrafts. Boys and girls in 4-H Club work carry on projects of all kinds pertaining to the farm and home.

### WILD LIFE

Fishing and hunting in season afford settlers healthy recreation and may help to reduce the cost of living. Many of the lakes and streams supply trout, grayling, and white fish; and the larger streams supply salmon. Particularly in the Matanuska Valley, settlers have put up a large enough supply of salmon to take care of their needs. Moose are often found near settlements, and some caribou pass through the Tanana Valley during the migration period. Wild fowl such as ducks and geese are numerous in the early fall, but move south as winter approaches. Ptarmigan, grouse, and rabbits appear in cycles with several years between. In years of abundance the rabbits are sufficiently numerous to do much injury to both native and other plants.

A number of wild-life reservations have been established in Alaska. For information regarding the game laws of the Territory, apply to the Alaska Game Commission, Juneau, Alaska.

### FISHERIES

The numerous salmon canneries along the Alaskan coast have an output valued at nearly \$40,000,000 per year. The agricultural interests are little affected by these canning operations. A majority of the cannery workers are brought from San Francisco, Portland, and Seattle. As most of the provisions and stores are also imported, the industry offers little market for agricultural products.

### REINDEER PRODUCTION IN ALASKA

The history of reindeer in Alaska dates from 1891 when 16 animals were brought in from eastern Siberia and during the next decade additional importations increased the total to 1,280 deer. The Federal Government introduced



these animals to provide a broader base of livelihood for the Eskimos in North-western Alaska. A recent survey shows there are 250,000 reindeer in Alaska today.

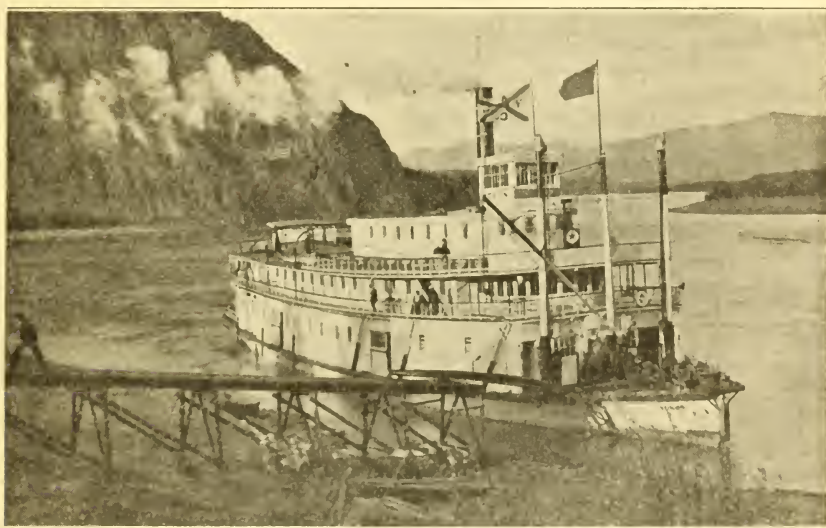
## RAILROADS

The White Pass and Yukon Route runs through American territory from Skagway to the summit of White Pass, 20 miles distant, and continues thence through Canadian territory to Whitehorse, head of navigation on the Yukon, 110 miles from Skagway.

A tramway extends from Nome into the mining fields for a distance of 90 miles.

The Alaska Railroad from Seward to Fairbanks, completed July 15, 1923, was built by the Government at a cost of approximately \$56,000,000. It skirts Turnagain Arm and Knik Arm to Anchorage, and thence follows the valley of the Matanuska, the Susitna, the Nenana, and the Tanana Rivers to Fairbanks. A branch line from Matanuska to Premier, Eska, and Jonesville, beyond Palmer, taps the Matanuska coal fields.

The Alaska Railroad operates a steamboat on the Tanana River from Nenana, on the Tanana, to Tanana, Ruby, Holy Cross, and Marshall, the principal towns on the middle and lower Yukon.



A river boat on the Yukon.

## GENERAL INFORMATION

The Matanuska Valley offers excellent opportunities for dairying, poultry, hog raising, and diversified farming. The land is covered with birch, spruce, and cottonwood in sufficient quantities to permit logging and saw-milling of lumber for consumption. Logs are sent to neighboring sawmills and are cut into lumber for use in farm buildings. Wood for fuel is plentiful on nearly all farms. Those who settle on cut-over land can obtain their wood from the

public domain. Local sawmills are in operation in both the Matanuska and Tanana Valleys.

The Tanana Valley is timbered with birch and spruce. On the north slopes the birch is more abundant, but on the south slopes spruce predominates. Satisfactory lumber can be cut from these trees. At present most of the timber used by the local mills is logged in the upper valleys of the Tanana Valley. In this valley diversified farming is also practiced. Higher summer temperatures the lighter rainfall make this region somewhat better adapted for the raising of grain than the Matanuska Valley. Dairying has also been carried on successfully in the Tanana Valley for a number of years.

Good coal from Suntrana is available at the chutes in Fairbanks at from 7 to 9 dollars per ton. Nut coal in the Matanuska Valley is \$5.50 per ton at the mine in car lots.

The various advantages and conveniences found in towns of equivalent population in the States are to be had at Fairbanks in the Tanana Valley and at Anchorage in the Matanuska region. Each town has its high school, daily newspaper, theater, chamber of commerce, hospital, bank, churches, general merchandise, drug and furniture stores, meat markets, restaurants, and hotels. Doctors, dentists, and lawyers are to be found in each town.

Many of the towns have libraries and reading rooms. Fraternal orders also maintain good buildings and reading rooms.

Settlers should purchase new machinery for shipment to Alaska. The freight rate on second-hand machinery is nearly as high as that on new machinery.

At present very little livestock is available for purchase in the farming communities. The prospective settler should bring his dairy cows and horses with him. This condition may change within a few years.

Cars carrying livestock in Alaska should be provided with water barrels so that the animals can be watered en route. Cattle must be inspected for tuberculosis and horses for glanders before they are placed on board ship at Seattle. During a portion of the summer livestock suffers considerably from mosquitoes, especially when pastured on the lowlands. Liquid fly repellent and sheds with burlap curtains will help to afford relief. As more land is cleared mosquitoes become less troublesome; and it is thought that as soon as large areas of land are brought under cultivation; the mosquito will cease to be a problem.

For information about the farm colony in the Matanuska Valley, address General Manager, Alaska Rural Rehabilitation Corporation, Palmer, Alaska.

For information as to homeseeker rates and passenger rates from Seattle to Alaska points, apply to:

General Manager, Alaska Railroad, 333 North Michigan Avenue, Chicago, Illinois, or:

The Alaska Steamship Company, Seattle, Washington.











# ALASKA

## EXPLANATION

- MAIN AGRICULTURAL REGIONS
  - AIRPLANE LANDING FIELDS
  - AGRICULTURAL EXPERIMENT STATIONS
  - WAGON ROADS (MOTOR TRUCK)
- SQUARES ARE EACH 100 MILES

SCALE OF MILES  
0 100 200 300

Map showing agricultural regions in Alaska



